

8.0 PAVEMENT DISTRESS MODEL

A procedure is proposed for using the DCP PR data to evaluate the pavement distress state for prioritizing the need for remedial measures. Figure 8.1 shows a plot of the PR-subgrade versus the PR-ABC from data obtained in the field. Superimposed on Figure 8.1 are CBR data and the corresponding ABC thicknesses for the test sites (note that d =thickness of the ABC in the field) as well as the serviceability index. Also shown on Figure 8.1, is “pt=2.5” line representing the proportional requirement for PR-ABC and PR-subgrade values that, if satisfied, the pavement strength meets the criteria for terminal serviceability of 2.5. This line will be referred to as the “pt=2.5 criterion” and was constructed as follows:

- i) Using the correlation developed in this report for residual soils, CBR values for the subgrade are predicted for assumed PR values,
- ii) Using the CBR values of the subgrade, a structural number is determined and the required CBR value of a 202 mm (8 inch) layer of ABC stone is computed. These calculations are performed in accordance with the AASHO design method of pavement structures (1962),
- iii) The estimated ABC CBR values are then used in equation (3) and the corresponding PR-ABC values are estimated, and,
- iv) The predicted PR-subgrade and PR-ABC values are then used to construct the “pt=2.5” line shown in Figure 7.

These calculations were conducted assuming 18 kip equivalent axle load, regional factor of 1, ABC thickness of 203 mm (8 inches) and asphalt thickness of 51 mm (2 inches) with a layer coefficient of 0.44.